

Mount Diablo Astronomical Society

Diablo Moon Watch

January 2013

GENERAL MEETING

Tuesday January 22, 2013

The Sutter's Mill Meteorite Fall

By Dr. Peter Jenniskens

NEW LOCATION

Doors open at 6:45 p.m.
Lindsay Wildlife Museum
1931 First Avenue,
Walnut Creek, CA 94597

On April 22, 2012, a 3 meter sized asteroid crashed in Earth's atmosphere over the Sierra Nevada mountains in California.

The meteor fell near Sutter's Mill, the site of the gold discovery that set off the California Gold Rush. Meteorites are still being found in



the area and are of a rare carbonaceous chondrite type. Meteor astronomer Peter Jenniskens was one of the first on the scene, and will describe what to look for,

how to search and what has been found so far.

Dr. Peter Jenniskens is a Research Scientist with the Carl Sagan Center at the SETI Institute and works on mission projects at NASA/Ames Research Center in Moffett Field, California, and on research topics that relate to interstellar and interplanetary matter.

Jenniskens is an expert on

(Continued on page 4)

Einstein's Telescope

by Nathaneil Bates

A couple of years ago, I was privileged to see the telescope owned by Albert Einstein at the Chabot Space and Science Center.

I am at a loss as to what went through the mind of someone who was a theoretical physicist and not an Astronomer, and yet whose theories did so much to

advance our understanding of the Big Bang and Cosmology. I probably will never know, but I can imagine. . .

I am a Physicist, not an Astronomer. A lot of the public thinks that because my efforts uncovered Relativity that I am an expert on all matters scientific.

The truth is that the mystery of biology eludes me. Schrödinger may think that he can uncover the mystery of life using Quantum Physics, and he may be right. But, as much as I have faith that the Universe is ultimately understandable, the faith of a scientist; I have more

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WHAT'S UP

Virtual Star Parties--Bringing Live Astronomy to the World by Stuart Forman

What is a star party? In the last 2 years internet technology has brought a sea of change in how information is shared. A year ago Fraser Cain of Astronomy Cast asked the question, "What if we can bring star parties to the whole world?" He recruited astronomers from all over the globe to stream their telescope feeds online via Google Plus Hangouts, and has had professional astronomers such as Pamela Gay and Phil Plait to comment, moderate, and teach. Every Sunday we have hundreds of viewers and during the Venus transit we had over two thousand.

PRESIDENT'S CORNER

Patrick Moore (1923 - 2012)

by Chris Ford

On December 9th the well known British popularizer of astronomy Patrick (Caldwell) Moore passed away at the age of 89 and this month I think it is fitting to pay a short tribute to his influence both direct and indirect, in both amateur and indeed professional astronomy.

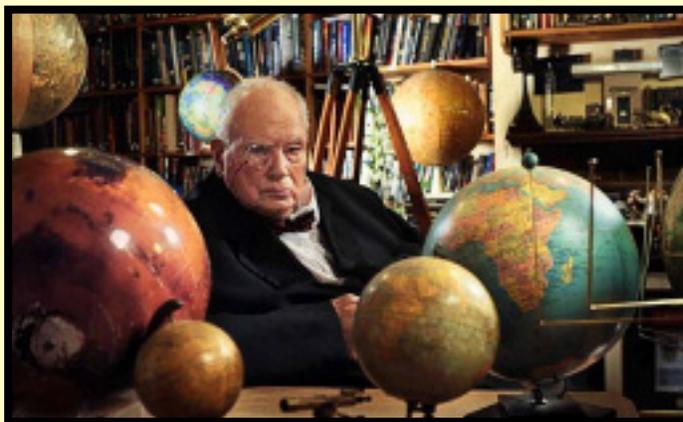
He was certainly the single most important influence in establishing this authors interest in astronomy from childhood onwards.

Patrick Moore was also fairly well known to amateur astronomers here in the USA and in his later years had become almost a living brand, his name associated with the Caldwell catalogue, over 70 books published either by him or with his imprimatur, and an astronomy magazine named after his long running BBC Sky at Night television series. This program began airing in 1957 and is the longest-running television show of all time of which he presented every single episode bar one. Usually consigned to the graveyard slot of 1.00 am in the morning, the Sky at Night more than anything else motivated my astronomy interest as a child growing up in the UK.

(Being lucky enough to have indulgent parents who let me stay up late to see it!) It is probably hard to over estimate the influence he had, not only on myself but on many scientists across the globe who credit Moore and his books and programs for inspiring them to pursue their careers. For example "the first book on the cosmos I ever read was written by Sir Patrick Moore. May he rest in peace, somewhere in the universe," said the well known astronomer Neil deGrasse Tyson, Director of the American Museum of Natural History's Hayden Planetarium on hearing of Moore's passing.

I suspect that many members of our society have encountered something written by Patrick Moore, and he surely left an indelible mark on the world of amateur astronomy. Though sometimes referred to as the "British Carl Sagan" as an astronomy popularizer, it is hard to think of a personality more different. In many ways he was a classic English eccentric that made him a very well known and idiosyncratic character in his home country. The BBC once famously attempted midway through his 55 year run of The Sky at Night to tidy him up, putting him in proper fitting suits, combing his hair, and

straightening out his tie. That did not last 5 minutes, and his distinctive accent and disheveled looks probably made him even more appealing for a non-specialist audience. Where astronomy was concerned though, he was immensely learned, passionate about sharing the joy of the subject with everyone, and for a long



time from the 1950's onwards, one of the very few popular writers on the subject, and as such he had an international reach.

There are many testimonials that can be found on the web so I won't repeat them here, only that entirely self-taught Patrick Moore was regarded in the world of astronomy as not merely a gifted amateur but where the subject of the Moon was concerned at one time he was one of the world's leading experts.

He could talk like a machine gun at 300 words a minute (and type at 89 words a minute on the 1908 typewriter that he punched

Patrick Moore (1923-2012) *(Continued from the previous page)*

all his books out on) and he will no doubt be remembered for his monocled professor looks promoting a subject that is marginal to many. Over his half-century on the air, he met and interviewed almost everyone of consequence in astronomy and space technology, including Werner von Braun, Jocelyn Bell Burnell who discovered pulsars, Einstein, and

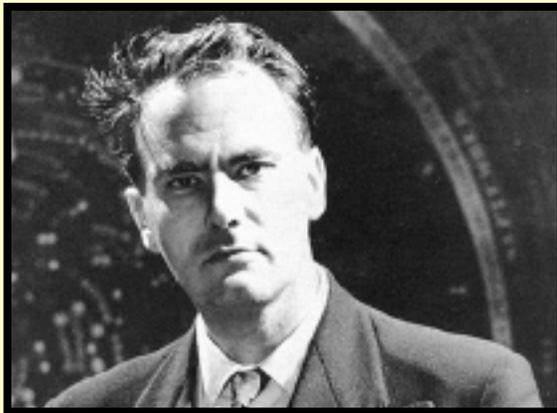
Armstrong and Aldrin. His reputation crossed the Iron Curtain when he was invited to the USSR to meet Yuri Gagarin, and he was the first Westerner

to see the results from the Soviet Luna 3 probe which mapped the Moon's far side in 1959. He even met Orville Wright. I think this testimonial from Brian Warner the emeritus professor of astronomy, University of Cape Town, is particularly appropriate:

"There are many individuals in successive generations of professional astronomers who owe a great deal to the books and personal support of Patrick Moore.

He introduced children of all ages to astronomy, and some of them became prominent professionals in astrophysics and planetary sciences. Having, as a schoolboy, lived within bicycling dis-

tance of Patrick's house in East Grinstead, I benefited from his encouragement and generosity of time and, indeed, from his introduction to those who were later to become my teachers and mentors. And I still value the inscribed books he gave me during those years. The scope of his books went well beyond introductory and popular texts - his early lunar



and planetary publications were well-rounded reviews that included much from the professional literature. Some books, such as the one

on Neptune (1989), were useful contributions to the history of astronomy. Patrick's eccentric presence and encyclopedic knowledge, as a radio voice and TV personality present at many of the significant astronomical and space related events over more than half a century, steadily maintained public interest in the subject and helped encourage the large increase in entrants to university astronomy courses. Other sciences should have been so lucky."

I only met him once at a book signing at Foyles bookshop in London where my overriding impressions was that he was bigger in real life than on the small screen. I found him quite charm-

ing in a kindly old uncle kind of way, and many who spent time with him have described him as a courteous gentleman who replied to every letter, kept his address and telephone number in the public domain so that interested people could contact him, and according to Queen guitarist (and astro-physicist) Brian May, spent almost all of his money on helping other people. Simply if it had not been for Patrick Moore I would not be interested in astronomy or writing this tribute.

So wherever you are now in the Universe, thank you, and clear skies Patrick Moore!

Chris Ford

Scopes Are Needed!

Upcoming Mount Diablo Astronomical Society Events:

Many events are scheduled, we'll see what the weather brings, check your calendars and signup where you can, Thanks!

Wednesday, January 16, 2013—7:00 p.m.- 8:00 p.m.

Hillview Junior High School Stargazing, Hillview Junior High, Pittsburg, CA Setup 6:00 p.m.

Thursday, January 24, 2013—6:00 p.m.- 8:00 p.m.

PHE Science Night, Pleasant Hill Elementary School, Pleasant Hill, CA Setup 5:00 p.m.

Wednesday, January 30, 2013—6:00 p.m.- 8:00 p.m.

Country Club Elementary Science Night, Country Club Elementary, San Ramon, CA Setup 5:00 p.m.

Tuesday, February 5, 2013—6:00 p.m.- 8:00 p.m.

Westwood Elementary Science Fair, Westwood Elementary School, Concord, CA

Friday, February 15, 2013—6:30 p.m.- 8:00 p.m.

San Ramon Parks Stargazing, Old Ranch Park, San Ramon, CA Setup 5:30 p.m.

Tuesday, February 19, 2013—6:30 p.m.- 8:00 p.m.

Pittsburg Library Stargazing, Pittsburg Public Library, Pittsburg, CA Setup 5:30 p.m.

Thursday, February 21, 2013—6:30 p.m.- 8:30 p.m.

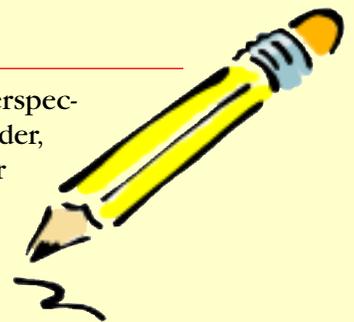
Hidden Valley Science Fair, Hidden Valley Elementary School, Martinez, CA Setup 5:00 p.m.

Writers Wanted

We are always looking for new articles and content. If you have astronomical perspectives or experiences to share with your fellow members that you would us to consider, please feel free to contact me Chris (cford81@comcast.net) or our newsletter editor Vianney. (veloroute@hotmail.com)

Clear skies!

Chris and Vianney



The Sutter's Mill Meteorite Fall (Continued from the first page)

meteor showers, and is known for identifying the parent body of the Quadrantid shower: a minor planet called 2003 EH1. The main belt asteroid 1999 TY224 has also been named (42981) "Jenniskens" after him. He is the Principal Investigator of ASIMA - the Asteroid Impact Analyzer, a proposed satellite mission (2014-

2016) to measure the carbon content of meteors from space and study the diversity of comets and asteroids.

Ice: His work at the Space Science Electron Microscopy Lab has led to the discovery that unusual forms of water ice play an important role in astrophysics.

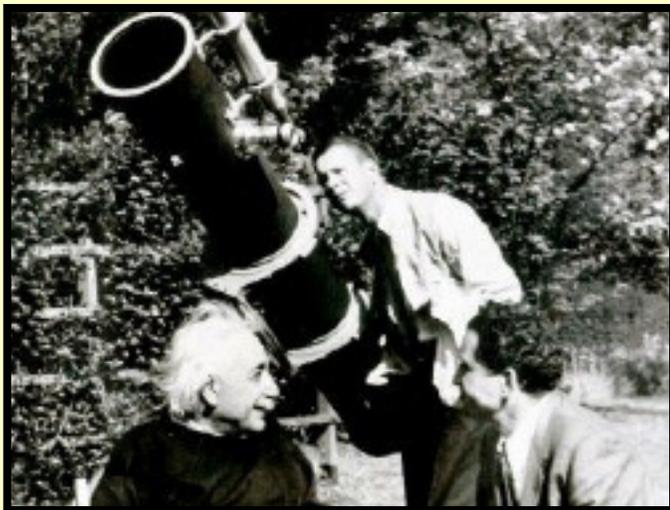
DIBs: His astronomical observations of Diffuse Interstellar Bands in the visual and near-infrared absorption spectra of interstellar matter, in collaboration with F-X. Desert, provided the first overall view of the Diffuse Interstellar Band spectrum.

Einstein's Telescope (Continued from the first page)

faith that the mysteries of Quantum Physics will be made comprehensible than I do the mysteries of life. Do not tell anyone I said this to you. It is between friends.

My telescope was a decent size amateur telescope that would not impress most of you.

I did not use it to make cosmological discoveries. I used it for recreation. My contributions to Astronomy rest in helping to uncover the Big Bang. Sadly, my biggest blunder was in not believing in my own contribution. Others now get credit for discovering the Big Bang



Einstein sitting and talking with Zvi Gezari, backyard of Princeton home, telescope in background. (Photo: Courtesy of the Albert Einstein Archives)

because I refused to believe that the Universe could have a beginning. Still, my equations were the ones that affirmed an expanding Universe. Pity the scientist who refuses to believe his own equations because they contradict his own philosophical prejudices!

I gave my telescope to my accountant as a gift, so I am going to have to think back on the last night I looked through it; and how much has changed between 1938 and now that I am an old man in the 1950's. I gifted it to him for helping me to navigate the IRS, the Great Dragon of the modern State. I cannot fathom the Great Dragon for the life of me. I cannot fathom how Reason can allow for money to be created out of nothing, and then for interest to be paid on it. This form of modern central banking requires taxes which then finance the wars that can only slow the evolution of mankind to world peace. I must

admit that my own discovery that mass can be converted to energy has given war a whole new meaning. The least I can do to atone is to stand for world peace in my remaining days!

Before I gave my telescope away, I gave it a whirl

through the heavens that inspire so much beauty in astronomers, poets, artists and schoolgirls. Let me think back. Since it is winter time, I should begin my remembrance with my view of the great stellar nursery known as the Orion Nebula. She is a mother; you see, a womb for stars. I see

the beauty of a gas cloud that is over 1,300 light-years away. I wish more humans would look up and see, with or without a telescope. The more time spent admiring the beauty of the heavens, the less time is spent in wars. Oh war! How necessary for our freedom against the Nazis. Yes, war freed the enslaved. However, it also enslaves the free when the nations that fight wars surrender more liberties to their governments that the never get back. I contrast that sad state of affairs with the distant gas cloud that is only a mother to stars, each star potentially with planets, and each planet with a chance of life. The nebulae only gives to life and does not take away.

The beauty is a beauty of ionized gas, nothing more, but also nothing less. Part of my life has been to help to understand Quantum Theory. Ionized gas will emit light in packets. Those packets are quanta, or particular bits of energy that are both wave and particle and the same time. Yes, it mystifies me too, and I never quite accepted the paradoxes involved here. But, I can admire the colors corresponding to the frequencies of light emitted. I never admired the beauty of Quantum Theory like I could Relativity, but I can admire the colorful hues of the quanta of light.

I realized that I was about to give up my telescope, and so I knew I had best enjoy it some more. Returning my memory to present tense, I scan the Pleiades

Einstein's Telescope (Continued from the previous page)

and allow my eyes to absorb the photons that left this cluster hundreds of years ago. I realize something profound. The light beams themselves have experienced no passage of time since leaving the Pleiades. That is an amazing assertion, but is all goes back to my discovery in 1905, when I was a young man with seemingly no future ahead of me. I was the last person anyone would expect would break the barrier to understanding space, time and light. Yet, here is the mystery in a nutshell. The passage of time for an object in motion is equal to the ordinary passage of time for a stationary object divided by the square root of one minus the velocity of the object in motion squared divided by the speed of light squared. Confused? Well, friend, the short end of it is that if the traveling object is actually a light beam then it experiences no passage of time. The photons left the Pleiades and came to my eye in the same instant as far as they are concerned.

It is paradoxical because I also discovered that the speed of light is constant to every frame of reference. So, with no passage of time then would not its speed be infinite? Well, length also contracts so the ratio of the change of distance over the change of time remains the same—provided we have a handy mathematical tool called Limits. It is all so abstract to you, I know. So enjoy the light. That is my best advice to you. Enjoy the beauty. The Pleiades are a sprinkle of light

on a canvass of dark. The eye may not understand the physics, but it can understand the art.

Sadly, the many astronomical objects of summer were not available to me on that last night. I could see a few planets. My favorite is Jupiter. Jupiter is a huge attractor of moons. The four Galilean satellites line up as distinct points that act as hands of a clock. Time can be told by the Galilean satellites. Galileo! A giant on whose shoulders I stood! Between you and me, a lot of Relativity rests on his philosophical thought. Many people say that I “disproved” Newton and Galileo, but nothing is further from the truth. Both men starred in to the infinite, or what they thought was infinite. Whether the Universe is infinite or simply finite and unbounded, it is vast and I can only admire the stamina of someone who can stare in to such an expanse and not blink.

Well, it is time to retire for the night, a night much like that night of decades before I am speaking to you, just as you are decades in the future from me. I spent more time in philosophy than I spent observing.

I am an old man now. Really, I am not an Astronomer. I am not even an experimental Physicist. I am a theoretical Physicist who has spent his life discovering through mathematics.

Most of you are far more advanced as astronomers than I

am. Like Hubble, like Zwicky, like Hoyle and like Lemaitre you have scanned the heavens with telescope while I used pen and paper. I can only have respect for you. I am an old man now, and I fear that I am about out of time. I am thankful that I have at least been able to glimpse the timelessness of light. Time still affects me, and soon I am about to retire for the duration of eternity.

You will live a while longer, and you have a chance to explore the heavens a while longer. You will explore with observation, an advantage over me. Some of you may make great discoveries. I wish you well with this. I take my leave of you now. Good night. May your observations be keen, bright, and long reaching. I thank you for listening to an old Physicist.

Well, it may have been something like that. I am not sure. I do remember the feeling of awe and mystery as I stood before Einstein's telescope. We'll never know his exact thoughts but one thing is for sure. We can know that he would wish us happy discoveries that are keen, bright and long reaching.

Mount Diablo Astronomical Society Event Calendar—January 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	31	New Year's Day 1	2	3	4	Society Observing (Private) 5 Sunset: 5:04 PM 
6	Board Meeting (Private) 7	8	9	10	11	Society Observing (Private) 12 Sunset: 5:10 PM 
13	14	15	Hillview Stargazing (Private) 16	17	18	19 Sunset: 5:18 PM 
20	Martin Luther King, Jr. Day 21	7:15 PM Gemini: Coloma Meteorite 22	23	PHE Science Night (Private) 24	25	26 Sunset: 5:25 PM
27	28	6:00 PM Telecon: NEOs 29	OCE Science Night (Private) 30	31	1	2

Two Club Member Volunteers Needed

REFRESHMENT WRANGLER: *One or two members can share this job.*

Description: We are in need of a volunteer to provide for refreshments for our monthly meetings. All you need to do is pick up an assortment of cookies (or other goodies) and beverages, and arrange them on a table at the monthly meeting by 7:00 pm. You'll be reimbursed for expenses. Best of all: You get to take home any leftovers!

How much time does it take? One to two hours a month.

Who do I contact? If this sounds like a sweet deal to you, give Marni a call (or text) at 925-930-7431 or email berendsen@aol.com.

PUBLICITY COORDINATOR:

Description: Contact local media outlets to publicize our monthly meetings and club events. Steve Jacobs (llsjacobs@astound.net) will provide you with more information and everything you need to get started.

How much time does it take? Four to eight hours a month.

Who do I contact? Contact our President, Chris Ford (cford81@comcast.net) 213-272-6306, to register your interest.

Board Members & Address

President

Chris Ford - cford81@comcast.net

Vice President

Rick Linden - Rick.C.Linden@gmail.com

Membership Coordinator, Mtg Room

Marni Berendsen - berendsen@aol.com

Meeting Program Chair

Dick Flasck - rflasck@aol.com

Outreach Coordinator, AANC Rep

Jim Head - jamesnhead@comcast.net

Publicity Board Member

Steve Jacobs - llasjacobs@astound.net

Observing Committee Chair, Board Member

Richard Ozer - rozer@pacbell.net

Whats Up Coordinator, Board Member

Kent Richardson - kayarind@sbcglobal.net

Treasurer

Will Roberge - wil@donabue.com

Newsletter Editor

Vianney - veloroute@botmail.com

Webmaster

Jon Steel - jonlee0483@aol.com

Secretary

Moon - metallicamoon@sbcglobal.net

New Member Steward

Nick Tsakoyias - claytonjandl@aol.com

Mailing address:

MDAS

P.O. Box 4889

Walnut Creek, CA 94596-3754

General Meetings:

Fourth Tuesday every month, except on the third Tuesday in November and December.

Refreshments and conversations at 6:45 pm;

Meeting begins at 7:15

Where:

Lindsay Wildlife Museum

1931 1st Avenue

Walnut Creek, CA 94597

(925) 935-1978

wildlife-museum.org.

Directions to facility:

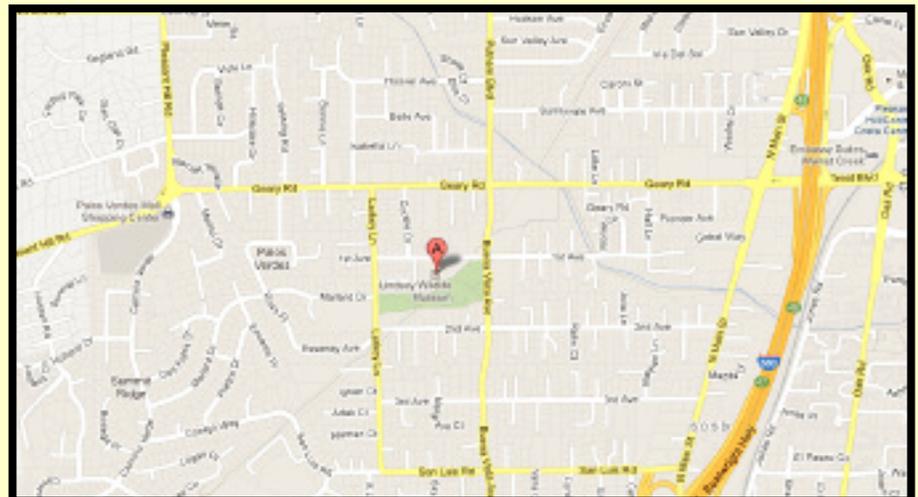
From the North: Take 680 South to Treat Blvd. exit. Turn left at light onto North Main St. Turn right on Geary Road. Turn left on Buena Vista.

Turn right on First Avenue. The museum is halfway up the block on the left.

From the South: Take 680 North. Take the Treat Blvd./Geary Road exit and turn left over free-way. Go three more lights and turn left on Buena Vista. Turn right on First Avenue. The museum is halfway up the block on the left.

Parking:

The museum is located in a residential area. There are no parking fees nor meters. Please park only in the museum parking lots on the east side of the museum, the Friends Church lot across the street (except Sunday mornings) or on Buena Vista Avenue. Please do not park on First Avenue in front of our neighbors' homes — you will get a parking ticket.



Thank You to Those Who Helped Make MDAS a Success

We want to give a special appreciation to three members who are retiring from their club jobs:

- **Glenn Spiegelman** who has served as our Webmaster for many years and has kept www.mdas.net up-to-date and modernized. We welcome Jon Steel who has stepped up to take over Glenn's position.
- **Moon Trask** who is our devoted club Secretary, but who has also provided refreshments at club meetings for the last few years. Her work schedule has made it so she can no longer serve as Refreshment Wrangler.
- **Steve Jacobs** who is stepping down as the Board Member in charge of Publicity for club events to assure good turnouts. Steve couldn't remember how long he's been doing the publicity - it's been over 10 years!

And a Very Special Heartfelt Thank You

- **Marni Berendsen and The Concord Police Academy** who provided a great venue for so many years, and Marni coming in early to not only open the gates and the doors but to set up the room.